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AUTHOR

Young, Roy A.

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(Subject Fields)

## ABSTRACT

In an effort to obtain systematic information concerning environmentally-oriented instruction and research programs at state universities, the Council on Research Policy and Administration of the National Association of State Universities and Land Grant Collages developed a questionnaire for this purpose. The objectives were to obtain information on (1) university organization for administration of environmental science academic programs, (2) instructional activities in environmental science areas, and (3) the nature and magnitude of interdisciplinary research programs currently operative. Responses from 85 out of 100 universities surveyed indicate that 62 have some sort of academic units established. Six listed a School of Environmental Science and seven listed a Department of Environmental Science. It was concluded most institutions apparently have developed interdisciplinary programs within their normal disciplinary school and department structure. The most frequently listed interdisciplinary research unit was Water Resources with 50 listings. Next most frequent was urban/regional planning (39), followed by air resources (29), marine resources (27), and environmental health (26). The largest units, based on the number of faculty and graduate students and dollar support, were Water Resources, Marine Resources, Urban and Regional Planning, and Environmental Health. Four tables tabulate the individual data. A sample questionnaire is not included. (BL)



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ENVIRONMENTAL EDUCATION AND RESEARCH PROGRAMS AT STATE UNIVERSITIES

Roy A. Young

In discussions in 1970 it became evident to members of the Council on Research Policy and Administration of the National Association of State Universities and Land Grant Colleges that little systematic information was available concerning environmentally oriented instruction and research programs at state universities.

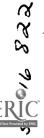
Conversations with representatives of several federal agencies and the Planning Committee for the 1972 United Nations Conference on the Human Environment in Stockholm showed almost complete lack of awareness of the rather extensive research efforts in environmental science areas at a number of universities.

In an effort to obtain information on interdisciplinary environmental education and research programs at state universities, a committee was appointed to develop a questionnaire to be circulated by mail and to organize the results of the survey for presentation to CRPA membership.

The objectives of the questionnaire were to obtain information on (1) university organization for administration of environmental science academic programs,

(2) instructional activities in environmental science areas, and (3) the nature and magnitude of interdisciplinary research programs currently operative on campuses of state universities.

The questionnaire was addressed to Vice Presidents for Research, Deans for Research or other administrative officers responsible for research coordination and administration at state universities.



Fred N. Andrews, Vice President for Research and Dean of the Graduate School, Purdue University

Ralph W. Cummings, Administrative Dean for Research, North Carolina State University at Raleigh

John E. Nellor, Associate Vice President for Research Development, Michigan State University

Roy A. Young, Vice President for Research and Graduate Studies, Oregon State University

Two surveys were made. The first survey was conducted in the Spring of 1971 and results were tabulated in early summer. Originally it was planned that these results would be summarized and distributed at the 1971 meeting of the Council on Research Policy and Administration. However, a review of results indicated a number of discrepancies in information supplied by several universities. We, therefore, decided not to distribute the results of the first questionnaire, but to attempt to improve the questionnaire and circulate the revised form to all state universities in the Spring of 1972.

In 1972 questionnaires were mailed to 100 universities and responses were obtained from 85. This report summarizes information obtained in the two surveys.

A number of universities indicated that the format of the questionnaire did not provide an opportunity for them to present a complete picture of the effort in environmental sciences on their individual campuses. Also, several institutions responded that, rather than setting up separate units for environmental science, both instructional and research efforts had been integrated into instructional and research efforts in disciplinary departments.

The information obtained from the questionnaires is tabulated in the following four tables. Because there are some inconsistencies in reports from institutions, respondents may wish to correct this draft before it is reproduced and distributed by NASULGC. Table 1 indicates whether or not institutions responded to the questionnaires in 1971 and 1972 and indicates whether or not academic units were established on the respondent's campuses.

Sixty-two of the 85 universities responding indicated that they have some sort of academic units established. Only six, however, listed a School of Environmental Science and only seven listed a Department of Environmental Science.

Most institutions apparently have developed interdisciplinary programs within their normal disciplinary school and departmental structure.

Eight institutions that had no established academic units in 1971 reported a unit in 1972. Of the eight, only one was a School of Environmental Science. The others were institutes or programs.

Table 2 indicates the presence or absence of listed interdisciplinary research \u00a7 units on campuses of the responding institutions in 1971-72.

Table 3 presents a summary of the numbers of institutions with various interdisciplinary research units, information on numbers of faculty and graduate students, and dollar support for each different research unit in 1971.

Table 4 presents similar information for 1972.

The most frequently listed interdisciplinary research unit was Water Resources with 50 listings. Next most frequent was urban/regional planning (39), followed by air resources (29), marine resources (27) and environmental health (26).

The largest units based on faculty FTE and numbers of graduate students were Water Resources, Marine Resources, Urban and Regional Planning, and Environmental Health.

Many institutions are still in the process of attempting to determine the most suitable organizational structure to meet their needs for increased emphasis on instruction and research in different areas of the environmental sciences. It is hoped that the information from this survey will be useful to institutions still in the process of reviewing models for environmental science programs, we well as to other institutions, federal agencies, and foundations.

mep 11/7/72



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· ×	•	×				×	××		××	×	1971 1972	Any Other Academic Unit
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Salvador Rodriguez	R. M. Mazo Stanton A. Cook Richard Schein	Roy A. Young	Marvin T. Edmison	•	Murlin Hodgell	N. S. Cohn	William Gealy Jules B. LaPidus		Alan Coogan	A. W. Johnson	First Name - 1971 Second Name - 1972	Name of Respondent

	University of Utah	Utan State University		University of Texas	Texas Technological University	Prairie View A&M	Texas A&M University	University of Tennessee	Tennessee State University	University of South Dakota	South Dakota State University	University of South Carolina	South Carolina State College	Clemson University	Name of College or University		
ſ							<del>-</del>		×						1971	No	Res
					_	×								×	1972	No	Responded to Questionnaire
	×	×	>		L.		×	×		×	×	<b>&gt;</b> :	×	×	1971	Yes	ded
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	×						×		×		×	×	×		1971 1972	No Acad Establi	iemic Unit Ished
															1971 1972	School Environ	or College of mental Science
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R. L. Hurst	0																		rolin.	<u>.                                    </u>
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Name of Respondent	Total by Col	Any Or Academ		Environte:	Progra Insti	Envir	Envir		Envir	<b>-</b>	Depar	Schoo						. No		
	Units Estebli lege or Unive	ther nic Unit	ute for al Resources	onmental Quali	am tute of Ecolog	onmental Studi	onmental Healt ces Center	onmental Studi	onmental Scie	onmental Scien	tment of onmental Scien	l or Department man Ecology	ol or College conmental Scie	ademic Unit	[n	ed to	Responded to Questionnaire	Res Que		
	shed rsity			.ty	; <b>y</b>	es	:h	Les	nce		200									

	TOTALS	University of Wyoming	U. of Wisconsin-Milwaukee	U. of Wisconsin-Madison	U. of Wisconsin-Kenosha	U. of Wisconsin-Green Bay	West Virginia University	University of Washington	Washington State University	Virginia State College	Virginia Polytechnic Institute	University of Virginia	University of Vermont	Name of College or University		
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	15		1	×	ı	1								1972	No	ond
	74	×				×	×	×	×		×	×	×	1971	Yes	ed 1
	85	×					<u>×</u>	<u>~</u> _	<u>×</u>	<u>×</u>	<u>×</u>	<u>×</u>	<u>×</u>	1972	Yes	to
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	3													1971 1972		mental Health s Center
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Full Text Provided by ERIC	98	0					<u> </u>	<u> </u>	<u> </u>	2	2	<u> </u>	<u> </u>	1972	by Coll	ege or University
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William Cruikshank, Jr. Carl H. Reidel	2	×				×	×		_							×	×				
First Name - 1971 Second Name - 1972	1971 1972	1971	1972	1972	1972	1972	1971 1972	1971 1972	1971 1972	1971 1972	1971 1972	1971 1972	1971 1972	1971 1972		1972	1971	1971 1972	<u> </u>	versity	iver
Name of Respondent			Natura	Enviro Center	_		Enviro				Depart										
	Units Established lege or University	ic Unit	ute for 1 Resources	nmental Quality	ute of Ecology	nmental Studies	onmental Health	nmental Studies	onmental Science	onmental Science	ment of Science	or Department	or College of	ademic Unit lished	•	Responded to Questionnaire	nded	Responded Questionn	<b>1</b> 2		
	,																				

Table 2. Titles of Interdisciplinary Research Units Established at State Colleges and Universities in 1971 and 1972

	University of Connecticut	Connecticut Ag. Exp. Sta.	Colorado State University	U. of California-Riverside	U. of California-Irvine	U. of California-Santa Cruz U. of California-Santa Barbara U. of California-L.A.	U. of California-Davis	University of Arkansas	University of Arizona	Arizona State University	University of Alaska	Name of College or University	
		×		××		××	×	×				1971 1972	Air Resources
	×	×	×	×	×	×	×	×	×	×	×	1971 1972	Water Resources
							×	×			×	1971 1972	Mineral Resources
Γ	*		-		×	×	×				×	1971 1972	Marine Resources
					×	×	×				<del>, .</del>	1971 1972	Coastal Zone Mgt.
	_					×	××	×				1971 1972	Nuclear Science
			×		×		×	×			×	1971 1972	Environmental Health
					×		×	×		×		1971 1972	Family Planning
-	×						×	×				1971 1972	Nutrition
	*			×			×	×				1971 1972	Pesticides
				×			×	×				1971 1972	Toxicology
		×				×	×	×		×		1971 1972	Solid Waste Mgt.
					×	-× ×	×	×				1971 1972	Transportation
					×	× × ×	×					1971 1972	Human or Family Ecol.
				×	×	×	×	×	_			1971	Land Use
-						^		×			<u>×</u>	1972 1971	
		_				_						1972	Community Design
												1971 1972	Housing
			_		*	×	×	×			×	1971	Urban and/or
$\vdash$		*		_			<u> </u>			_		1972 1971	Regional Planning
<u>_</u>		×		_	×		×					1972	Noise-Acoustic Stress
					×		×					1971 1972	Science & Pub. Policy
$\prod$						×		<b>×</b>		×		1971 1972	Recreation
C-							×	×		×		1971	Environmental Law
by ERIC					×			×			_	1971	Urban Planning

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		>:	×	:	×	×					1	A
					•						E .	Water Resources
Marine Resources   1971				<del>- 2</del>		×	·			×	1972	Mineral Resources
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						× ×					1972	Coastal Zone Mgt.
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Family Planning   Family Pla		×	<del>-</del>	×		×		_		×	1972	Environmental Health
Nutrition	×					×					1972	Family Planning
	1/2					×					1972	Nutrition
X	J		×			×					1972	Pesticides
	<b> </b> ,	<del></del>	<b>×</b>			×					1972	Toxicology
	i		_	- <del>-</del>					<del></del>		1972	Solid Waste Mgt.
				×	×	_ • •		<b>~-</b>			1972	Transportation
						<u>×</u>	<del>- &amp;</del> -				1972	Human or Family Ecol.
1972   Community Design   1971   1972   Housing   1971   Urban and/or   1972   Regional Planning   Noise-Acoustic Stress   1971   1972   Science & Pub. Policy   1971   Science & Pub. Policy   1971   Recreation   1971   Environmental Law   Urban Planning   1971   Environmental Law   Urban Planning   1971   Regional Planning   1971   Regional Planning   1971   Regional Planning   1971   Environ. Resources   1972   Remote Sensing   1972   Environ. Resources   1972   Remote Sensing   1972   Environ. Resources   1972   Remote Sensing   1972   Environ. Resources   1973   Remote Sensing   1974   Environ. Resources   1975   Remote Sensing   1976   Environ. Research   1977   Environ. Resources   1978   Remote Sensing   1979   Environ. Resources   1971   Remote Sensing   1972   Environ. Resources   1973   Environ. Resources   1974   Remote Sensing   1975   Environ. Resources   1976   Remote Sensing   1977   Environ. Resources   1978   Remote Sensing   1979   Environ. Resources   1979   Environ. Resource			*		×					×	1972	Land Use
1972   Housing   1971   Urban and/or   1972   Regional Planning   1971   1972   Noise-Acoustic Stress   1971   1972   Science & Pub. Policy   1972   Recreation   1972   Recreation   1972   Recreation   1971   Environmental Law   1971   Urban Planning   1971   Regional Planning   1971   Regional Planning   1971   Regional Planning   1972   Remote Sensing   1972   Environ. Resources   1972   Remote Sensing   1972   Environ. Research   1972   Environ. Research   1973   Regional Planning   1974   Environ. Resources   1975   Remote Sensing   1976   Environ. Research   1977   Environ. Research   1978   Environ. Research   1979   Environ. Research   1970   Environ. Research   1971   Environ. Research   1972   Environ. Research   1973   Environ. Research   1974   Environ. Research   1975   Environ. Research   1976   Environ. Research   1977   Environ. Research   1978   Environ. Research   1979   Environ. Research   1970   Environ. Research   1971   Environ. Research   1971   Environ. Research   1971   Environ. Research   1972   Environ. Research   1973   Environ. Research   1974   Environ. Research   1975   Environ. Research   1976   Environ. Research   1977   Environ. Research   1977   Environ. Research   1978   Environ. Research   1978   Environ. Research   1978   Environ. Research   1979   Environ. Research   1970   Environ.											1972	Community Design
Noise-Acoustic Stress   1971   1972   Noise-Acoustic Stress   1971   1972   Noise-Acoustic Stress   1971   1972   Science & Pub. Policy   1972   Recreation   1971   Recreation   1971   Environmental Law   1971   Urban Planning   1971   Regional Planning   1971   Population Control   1972   Environ. Resources   1972   Environ. Resources   1972   Environ. Research   1972   Environ. Research   1972   Environ. Education   1971   Other (May be more than one)   1971   By College or   1971							_				1972	•
Noise-Acoustic Stress    1972   Noise-Acoustic Stress   1971   1972   Science & Pub. Policy   1971   1972   Recreation   1971   Environmental Law   1971   Urban Planning   1971   Urban Planning   1971   Regional Planning   1971   Regional Planning   1971   Population Control   1972   Environ. Resources   1972   Remote Sensing   1972   Environ. Research   1972   Environ. Research   1972   Environ. Education   1971   Other (May be more   1972   1971   By College or   1971   19	ļ				×	_×				×	1972	
Science & Pub. Policy   1972   1971   1972   Recreation	<u>×</u>	<del></del>				<del>- U</del> -					1972	Noise-Acoustic Stress
Secretation   1972   Recreation						-	<u> </u>				1972	Science & Pub. Policy
Second Planning   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1972   1972   1972   1972   1972   1972   1972   1972   1972   1973   1974   1975   1975   1976   1976   1977   197					×	<del>.</del>					1972	Recreation
1971   Regional Planning   1971   Population Control   1972   Environ. Resources   1972   Remote Sensing   1972   Environ. Research   1972   Environ. Research   1972   Environ. Education   1971   Other (May be more   1972   than one)     1971   By College or   1971   1971   By College or   1971   1971   By College or   1971				-			×		<u>×</u>			
Population Control 1972 Environ. Resources 1972 Remote Sensing 1972 Environ. Research 1972 Environ. Education 1971 Other (May be more 1972 than one)  A A H N N ANH & G I G I 1971 By College or	<u> </u>										1971	Regional Planning
1972 Remote Sensing 1972 Environ. Research 1972 Environ. Education 1971 Other (May be more 1972 than one)  A A H N N ANH & G I G I 1971 By College or		×				<del></del>					-	Population Control
1972 Environ. Research 1972 Environ. Education 1971 Other (May be more 1972 than one)  A A H N N ANH & O I O I 1971 By College or											1972	Remote Sensing
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	University of Maine	Louisiana State Unive	University of Kentucky	University of Kansas	Kansas State University	Iowa State University	Purdue University	Indiana University	University of Illinois	University of Hawaii	University of Georgia	Georgia Inst. of Tec	University of Florid		Name of College or U	
		University	- <del></del>						is		<b>9</b> 3	Technology	α. 	re	University	
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	<u>×</u>	<b>×</b> ,								×	×	_	×	×××	1971 1972	Marine Resources
-		×			×					×	×		<u>×</u>	×	1971 1972	Coastal Zone Mgt.
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L		×		×	×		××	×		×	× _				1971 1972	Environmental Health
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					×		×			×			×	×	1971 1972	Pesticides
			•		×		×	×					-	×	1971	Toxicology
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					×		×				_				1971 1972	Community Design
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		×	×	×	~		~		_	×			×	×	1971	Urban and/or
<u> </u>			<u>^</u> _		×	_	×	×	_	<u>×</u>	<u>×</u> _	_	<u>×</u>	<u>×</u>	1972 1971	Regional Planning
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_							×	×			×				1971 1972	Science & Pub. Policy
							×	×	×		×			×	1971 1972	Recreation
				×				×							1971	Environmental Law
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RIC				×	×		×	_	×	-		×			1972	Environ. Resources
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×	_ ×	_×		×		×		×				×		1972	Air Resources
×	_		×	×		×	×		×	×		ᆽ	×	1971	
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			_×	<u>×</u>		<u>×</u>							×	1972	Solid Waste Mgt.
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				×		<u>×</u>								1972	Community Design
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						×								1972	Housing
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	<u>×</u>	<u>×</u>	<u>×</u>	<u>×</u>		×	_×_		×	_×		×	×	1972	Regional Planning
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						<u>×</u>	×			<u>×</u>				1972	Science & Pub. Policy
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														1971	Environmental Law
			<del>-^-</del>	×			<u>×</u>						<u>×</u>	<u> </u>	Urban Planning
				<del>-</del>										1971	Regional Planning
			<del> :</del>				×		×	×		×	<u>×</u>	1971	Population Control
			<del>-</del>	× :		×	<u> </u>	×			×			1972	Environ. Resources
					_	<u>~</u>		<u>~</u>						1972	Remote Sensing
		_												1972	Environ. Research
								_	_	F2	K.4			1972	Environ. Education
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										<u>×</u>			×	1972	than one)
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	Kent State University	University of North Dakota	University of North Carolina	New Mexico State University	Rutgers University		, ,	2 5	) f	University of Missouri	Mississippi State University	University of Minnesota	University of Michigan	tate		of	Name of College or University
										-		×		×		×	1971
}			<u>×</u>		<u>×</u>	×	×	:	<del></del> ;	<del>-</del>	<u>×</u>	_ <u>×</u>	×	×	×	×	1972
-	×		×		<u>×</u>	×		<b>!</b>		<u>&lt;</u>	<u>×</u>	×	×	×	_×	_×	1971 1972
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┢									<u> </u>	<u> </u>	×	×	×	×	×	×	1972
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Air Resources

Water Resources

Mineral Resources

Marine Resources

Coastal Zone Mgt.

Nuclear Science

Environmental Health

Family Planning

Nutrition

Pesticides

Toxicology

Solid Waste Mgt.

Transportation

Human or Family Ecol.

Land Use

Community Design

Housing

Urban and/or

Regional Planning Noise-Acoustic Stress

Science & Pub. Policy

Recreation

Environmental Law Urban Planning Regional Planning

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18			×	××	×		×	×		×		1971	Land Use
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11			×	×						×	1972	Housing
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39	1		×			×	<b>×</b>			×	1972	Regional Planning
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18	1	<u>×</u>	×	×	×		×			×	1972	Science & Pub. Policy
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Table 3. Summary of Number and Magnitude of Interdisciplinary Environmental Research Units Reported by State Colleges and Universities in Response to First Questionnaire (1971)

Interdisciplinary		Tota	Total No.	i in	Each	Size						
Research Unit	Number of	Cate	Category-	-Fac	FTE			Total	No. in	Each Sur	Each Support Category	2400
	Institutions	Post	Postdoc.	Res.	Assoc.	00.)	Total No. of	U.		of Dollars	ייייייייייייייייייייייייייייייייייייי	801)
Name	With Unit	<3	\$	6	<12	>12	Stuc	*100 1	רטו	250-500	500-1000	×1000
Water Resources	42	11	7	œ	7	10	575	7	15	4	,	,
Air Resources	23	'n	7	۲.	~	7	2,70	. r	7	<b>.</b>	n 、	Λ.
Environmental Health	23	-	· ∞	7		٠ ٧	258	~ α	o ×	۰ د	<b>7</b> -	
Recreation	20	10	9	7	·	· C	120		<b>1</b> °	^ -	٦ ٥	<b>⊣</b> ⟨
Marine Resources	20	6	· <b>·</b>	۳ (	- ۱	<b>)</b> ư	021	77	<b>^</b> -	<b>-</b> 1 (	o <sup>,</sup>	>
Solid Waste Mgt.	61	1 00	7	· ~	<b>⊣</b> ⊂	) C	203	^ L	ᆉ ~	თ,	m :	?
Nutrition	61	2 (	ی ا	י כ	۰ د	1 v		<b>∩</b> υ	<b>.</b> .	<b>⊣</b> ⟨	<b>o</b> (	~ .
Land Use	20	7	ı,	1 0	, ,	) c	191	<b>∩</b> ¢	<b>Λ</b> (	7	<b>)</b>	<b>-</b>
Population Control	17	· vc	٠ ٦	۰ د	۱ (	٦ ,	900	n 0	7:	<b>⊣</b> :	0 (	<b>-</b>
Transportation	; <del>'</del>	> <	۳ ۳	1 ~	> <	ר כ	96	<b>~</b> 1	უ.,	O 1	5	0
Nuclear Science	3 2	t	י ר	٦ ٥	۰ د	7 -	76	<b>,</b> ,	-	0	က	0
Pesticides	J =	٦,	<b>n</b> (	า เ	7 (	٦ ،	41	7	-	5	-	-
CONTINUE DE LA CONTIN	C7 :	7 1	7	Λ		7	120	'n	m	C1	7	7
Science & Pub. Policy	14	7	7	-	7	2	84	7	à	-	0	· C
Urban & Reg. Planning	14	7	٠,	٣	2	٣	148	à	2	· - 1	0	) =
Regional Planning	14	7	2	0	m	1	115	9	5		) C	· -
Urban Planning	12	-	7	7	3		177		7	) <del>_</del>	) <u>-</u>	+ c
ᄆ	12	7	7	٣	0	٣	78	7		o C	? ^	1 3
	11	7	7	_	-	7		- 4	۱ ر	) <b>-</b> -	<b>7</b> F	> <
Coastal Zone-Mgt.	# :	7	7	0	Н	2	85	~,	۱ ,		٦ (	· > <del>-</del>
Toxicology	6	7	m	0	0	2		٦ ٣	1 -	٠,	> -	<b>-</b>
Community Design	6	(	~	~	0	0	25	ى ر	- ۱	٦ (	٦ ,	<b>&gt;</b>
Noise-Acoustic Stress	7	7	7	0	0	0		7	4 0	<b>&gt;</b> C	o c	<b>-</b>
Human or Family Ecol.	7	Н	,7	0	-	2	125	۰ ۲	o c	) <del>-</del>	<b>&gt;</b>	<b>&gt;</b>
Environmental Law	9	m	7	-	0	0	7	۰ د	o c	٠	> 0	> <
Housing	9	_	2	C	_		01	<b>1</b> c	> 0	> <	> 0	<b>-</b> (
All Others Combined	10*	ור	1 -	, ,	4 -	) <b>~</b>	L	n :	) ·	5	>	)
	13"	^	-	7	<b>-</b>	4	331	5	9	3	<b>-</b>	~:
TOTALS	397	93 101	0.1	99	34	63	3,720	134	77	36	2.8	17
								!		) }	I	ì

\*Nineteen universities responded for a total of 33 "other" units.

Table 4. Summary of Number and Magnitude of Interdisciplinary Environmental Research Units Reported by State Colleges and Universities in Response to Second Questionnaire (1972)

TOTALS	All Others Combined	Environmental Education	Environmental Research	Environmental Resources	Housing	Sensing	Noise-Acoustic Stress	Community Design	Toxicology	Coastal Zone Mgt.	Family Planning	Human Ecology	Mineral Resources	Science & Pub. Policy	Nuclear Science	Transportation	Pesticides	Recreation	Solid Waste Mgt.	Nutrition	Environmental Health	Marine Resources	Air Resources		Urban or Reg. Planning	Water Resources	Name W	I	Research Unit N	Interdisciplinary
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\*Thirty-one universities responded for a total of 38 "other" units.